WHAT IS CLAIMED IS:

1. Misting apparatus comprising:

a housing defined by a bottom wall, a top wall, a pair of side walls and a pair of end wall assemblies;

a plenum chamber within said housing;

a fan mounted in one of said end wall assemblies for supplying air flow to said plenum chamber;

at least one misting nozzle located proximate to an outlet side of said fan to thereby supply droplets of water into said air flow, said at least one misting nozzle connected to a source of water under pressure; and

a moisture eliminator mounted in the other of said end wall assemblies, said moisture eliminator shaped to remove unevaporated droplets before said air flow exits said plenum chamber.

2. The apparatus of claim 1 wherein said other of said end wall assemblies comprises a plurality of substantially vertically oriented vanes secured within a frame.

3. The apparatus of claim 2 wherein said vanes are profiled so that said air flow must change direction to exit the housing, thereby causing said unevaporated droplets to impinge on said vanes, and to collect on said bottom wall of said plenum chamber.

4. The apparatus of claim 3 wherein said bottom wall is fitted with a drain for transferring water collected on said bottom wall to a sump.

5. The apparatus of claim 1 wherein said fan includes a center hub and wherein said at least one nozzle is mounted in said center hub.

6. The apparatus of claim 1 wherein said at least one nozzle comprises a plurality of nozzles.

7. The apparatus of claim 6 wherein said fan includes a center hub and wherein said plurality of nozzles are mounted in said hub, each of said nozzles provided with at least one discharge orifice.

8. The apparatus of claim 1 wherein said source of water under pressure is adapted to deliver water to said at least one misting nozzle at between 200-1000 psi.

9. The apparatus of claim 7 wherein said at least one discharge orifice has a diameter of between about 0.2-0.5 mm.

10. A method of supplying cooled air to a space comprising:

a) adding water droplets to a flow of air to thereby generate a flow of cooled air;

b) removing unevaporated water droplets from the cooled air; and

c) delivering the cooled air to the space.

11. The method of claim 10 wherein said water droplets have cross-sectional dimensions of between 5 and 100 microns.

12. The method of claim 10 wherein step a) is carried out by locating one or more misting nozzles on an outlet side of a fan.

13. The method of claim 10 wherein step b) is carried out by directing the cooled air through a plurality of curved vanes such that the unevaporated water droplets collect on said vanes.

14. The method of claim 13 wherein said unevaporated water droplets coalesce into larger droplets that are collected and returned for use in step a).

15. The method of claim 10 wherein step a) is carried out by delivering water at a pressure of from 200-1000 psi to one or more misting nozzles.

16. A method of cooling an area comprising:

a) introducing water droplets having a size of from about 5-100 microns into an airflow entering a plenum chamber to thereby cool the airflow;

b) removing unevaporated water droplets from the airflow as the airflow exits the plenum chamber; and

c) supplying cooled airflow to the area.

17. The method of claim 16 wherein step a) is carried out by supplying water at a pressure of from

about 200-1000 psi to one or more misting nozzles located on an outlet side of a fan.

18. The method of claim 16 wherein step b) is carried out by directing the airflow through a plurality of curved vanes mounted at an outlet end of said plenum chamber.

19. The method of claim 17 wherein step b) is carried out by directing the airflow through a plurality of curved vanes mounted at an outlet end of said plenum chamber.

20. The method of claim 16 wherein said plurality of vanes include surfaces shaped and arranged to catch said unevaporated water droplets in the airflow and to direct said unevaporated water droplets to a drain in said plenum chamber.

21. The method of claim 21 and further comprising:

d) recirculating the unevaporated water droplets removed in step b) for use in step a).